

## CLAIMS

What is claimed:

- 1           1.       An applicator assembly for applying a primary coating material, a  
2       secondary coating material and a color coating material to an optical fiber, the assembly  
3       comprising:  
4           a pressurized source of the primary coating material;  
5           a primary reservoir in fluid communication with the pressurized source of the  
6       primary coating material, the primary reservoir being configured for applying a layer of  
7       the primary coating material to the optical fiber;  
8           a primary die adjacent the primary reservoir, the primary die including a primary  
9       land configured to size the layer of the primary coating material;  
10          a pressurized source of the color coating material;  
11          a color reservoir in fluid communication with the pressurized source of the color  
12       coating material, the color reservoir being configured for applying a layer of the color  
13       coating material to the optical fiber;  
14          a color die adjacent the color reservoir, the color die including a color land  
15       configured to size the layer of the color coating material;  
16          a pressurized source of the secondary coating material;  
17          a secondary reservoir in fluid communication with the pressurized source of the  
18       secondary coating material, the secondary reservoir being configured for applying a layer  
19       of the secondary coating material to the optical fiber; and

20           a secondary die adjacent the secondary reservoir, the secondary die including a  
21   secondary land configured to size the layer of the secondary coating material; and  
22           wherein the primary reservoir, color reservoir and the secondary reservoir are in  
23   fluid communication.

1           2.       The applicator assembly of claim 1, further comprising:  
2           an entry die including an entry land, wherein the entry land, the primary land, the  
3   color land, and the secondary land are substantially axially aligned, and wherein the  
4   primary reservoir is disposed between the entry land and the primary land, the color  
5   reservoir is disposed between the primary land and the color land, and the secondary  
6   reservoir is disposed between the color land and the secondary land.

1           3.       The applicator assembly of claim 1, further comprising:  
2           an entry die including an entry land, wherein the entry land, the primary land, the  
3   color land, and the secondary land are substantially axially aligned, and wherein the  
4   primary reservoir is disposed between the entry land and the primary land, the secondary  
5   reservoir is disposed between the primary land and the secondary land, and the color  
6   reservoir is disposed between the secondary land and the color land.

1           4.       The applicator assembly of claim 1, further comprising:  
2           an entry die including an entry land, wherein the entry land, the primary land, the  
3           color land, and the secondary land are substantially axially aligned, and wherein the color  
4           reservoir is disposed between the entry land and the color land, the primary reservoir is  
5           disposed between the color land and the primary land, and the secondary reservoir is  
6           disposed between the primary land and the secondary land.

1           5.       The applicator assembly of claim 1, further comprising:  
2           an entry die including an entry land;  
3           a second primary reservoir for applying a second layer of the primary coating  
4           material to the optical fiber;  
5           a second primary die including a second primary land configured to size the  
6           second layer of the primary coating material; and  
7           wherein the entry land, the primary land, the second primary land, the secondary  
8           land, and the color land are substantially axially aligned.

1           6.       The applicator assembly of claim 5, wherein the color reservoir is  
2           disposed between the entry land and the color land, the primary reservoir is disposed  
3           between the color land and the primary land, the second primary reservoir is disposed  
4           between the primary land and the second primary land, and the secondary reservoir is  
5           disposed between the second primary land and the secondary land.

1           7.       The applicator assembly of claim 5, wherein the primary reservoir is  
2 disposed between the entry land the primary land, the second primary reservoir is  
3 disposed between the primary land and the second primary land, the color reservoir is  
4 disposed between the second primary land and the color land, and the secondary reservoir  
5 is disposed between the color land and the secondary land.

1           8.       The applicator assembly of claim 5, wherein the primary reservoir is  
2 disposed between the entry land and the primary land, the second primary reservoir is  
3 disposed between the primary land and the second primary land, the secondary reservoir  
4 is disposed between the second primary land and the secondary land, and the color  
5 reservoir is disposed between the secondary land and the color land.

1           9.       The applicator assembly of claim 1, wherein at least one of the pressurized  
2 source of the primary coating material, the pressurized source of the color coating  
3 material, and the pressurized source of secondary coating material is a pump.

1           10.     A method of forming an optical fiber, comprising the steps of:  
2           drawing an optical fiber;  
3           applying a layer of primary coating material to the optical fiber;  
4           applying a layer of color coating material to the optical fiber;  
5           applying a layer of secondary coating material to the optical fiber; and  
6           wherein the layer of primary coating material, the layer of color coating material,  
7   and the layer of secondary coating material are each applied prior to the other layers  
8   being cured.

1           11.     The method of claim 10, wherein the layer of color coating material is  
2   disposed between and adjacent the optical fiber and the layer of primary coating material.

1           12.     The method of claim 10, wherein the layer of color coating is disposed  
2   between and adjacent the layer of primary coating material and the layer of secondary  
3   coating material.

1           13.     The method of claim 12, wherein the step of applying a layer of the  
2   primary coating material further comprises applying a first layer of primary coating  
3   material adjacent the optical fiber and applying a second layer of primary coating  
4   material between and adjacent the first layer of primary coating material and the layer of  
5   secondary coating material.

1           14.     The method of claim 10, wherein the layer of primary coating material is  
2     disposed between and adjacent the optical fiber and the layer of secondary coating  
3     material and the layer of color coating material is disposed adjacent the layer of  
4     secondary coating.

1           15.     An optical fiber formed by the method of claim 10.

1           16.     A method of forming an optical fiber, comprising the steps of:  
2           (a) drawing an optical fiber;  
3           (b) applying a layer of primary coating material to the optical fiber;  
4           (c) applying a layer of color coating material to the layer of primary coating  
5     material; and  
6           (d) applying a layer of secondary coating material to the layer of color coating  
7     material.

1           17.     The method of claim 16, wherein (c) further comprises applying a second  
2     layer of primary coating between and adjacent the first layer of primary coating material  
3     and the layer of secondary coating material.

1            18.     An optical fiber comprising:  
2            a layer of primary coating material having a first modulus;  
3            a layer of color coating material having a second modulus;  
4            a layer of secondary coating having a third modulus; and  
5            wherein the first modulus, the second modulus, and the third modulus are  
6            different values.

1            19.     The optical fiber of claim 18, wherein the layer of color coating material is  
2            adjacent the optical fiber and the layer of primary coating material.

1            20.     The optical fiber of claim 19, wherein the layer of color coating material  
2            has a thickness of between 2 to 10 microns.

1            21.     The optical fiber of claim 19, wherein the layer of color coating material  
2            has a thickness of between 4 to 7 microns and the layers of primary coating material and  
3            secondary coating material each has a thickness from 15 to 40 microns.

1            22.     The optical fiber of claim 18, wherein the layer of color coating material is  
2            adjacent the layer of primary coating material and the layer of secondary coating  
3            material.

1            23.     The optical fiber of claim 22, wherein the layer of color coating has a  
2            thickness of between 2 to 10 microns.

1           24.     The optical fiber of claim 22, wherein the layer of color coating material  
2     has a thickness of between 4 to 7 microns and the layers of primary coating material and  
3     secondary coating material each has a thickness from 15 to 40 microns.

1           25.     The optical fiber of claim 18, wherein the layer of color coating material is  
2     adjacent the layer of the secondary coating material and further comprises an outermost  
3     layer of the optical fiber.

1           26.     The optical fiber of claim 22, wherein the layer of color coating material  
2     has a thickness of between 2 to 10 microns.

1           27.     The optical fiber of claim 22, wherein the layer of color coating material  
2     has a thickness of between 4 to 7 microns and the layers of primary coating material and  
3     secondary coating material each has a thickness from 15 to 40 microns.

1           28.     A system for forming an optical fiber, comprising:  
2             means for drawing an optical fiber;  
3             means for applying a layer of primary coating material to the optical fiber;  
4             means for applying a layer of color coating material to the layer of the primary  
5     coating material, but before the application of a layer of secondary coating material; and  
6             means for applying the layer of secondary coating material to the layer of the  
7     color coating material.



- 1            29.     The system of claim 28, wherein the means for applying a layer of primary
- 2   coating material further comprises means for applying a first layer adjacent the optical
- 3   fiber and means for applying a second layer adjacent the first layer.